

STONE & WEBSTER ENGINEERING CORPORATION



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Nuclear Regulatory Commission
Attention Mr. Uldis Potapovs, Chief
Vendor Inspection Branch
Office of Inspection and Enforcement
611 Ryan Plaza Drive, Suite 1000
Arlington, TX 76012

September 26, 1980

Dear Mr. Potapovs:

The attachment to this letter responds to the concerns raised by your staff in the Notice of Deviation, 99900509/80-03, dated August 27, 1980, with regard to adequacy of Surry Project Procedure STF-3, Rev. 0, entitled "Procedure for the Evaluation of Stress and Reporting of Overallowable Stress for I&E Bulletin 79-14 Related Work."

Please contact us if you have any questions concerning this letter.

Very truly yours,

R.B. Kelly
Vice President, Quality Assurance

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RESPONSE TO NOTICE OF DEVIATION 99900509/80-03 DATED AUGUST 27, 1980

NRC Concern

"... Stone & Webster procedures developed to control activities on the Surry Project with respect to IE Bulletin 79-14 did not provide appropriate quantitative or qualitative acceptance criteria for determining that important activities have been satisfactorily accomplished. In particular, Procedure STF-3, Revision 0, dated November 26, 1979, entitled 'Procedure for the Evaluation of Stress and Reporting of Overallowable Stress for IE Bulletin 79-14 Related Work, Surry Power Station - Unit 1' was inadequate in not addressing the time frames and responsibilities for evaluation of nonconformances as specified in IE Bulletin 79-14 with respect to system operability and prompt notification of the licensee."

Stone & Webster Response

The method used to perform the pipe stress evaluation in response to IE Bulletin 79-14 for the Surry Power Station - Unit 1 was to obtain as-built piping information and to perform a new stress analysis. This differed from IE Bulletin 79-14 which calls for comparing as-built data with the original design (VEPCO to NRC letter No. 552B/070279, dated August 31, 1979). The stress evaluation included the performance of a preliminary stress analysis, the design of potential modifications indicated by that preliminary analysis, and the performance of a more detailed stress review to confirm or negate the need for the modifications identified from the preliminary analysis (VEPCO to NRC letter No. 972, dated November 28, 1979). Preliminary stress analysis was performed on most problems before detailed stress review could be initiated.

IE Bulletin 79-14 considers nonconformances as deviations of as-built piping from original design documents and permits two days or thirty days for evaluation. For Surry however, nonconformances were identified when the results from final stress analysis, following a thorough review by the Project Engineer or his designee, indicated that stress in a pipe exceeded ANSI B31.1, 1967 Edition allowables. These allowables are very conservative. This approach was adopted to expedite the IE Bulletin 79-14 evaluation process and complete the evaluation of approximately 116 stress problems and 1400 supports within the agreed upon five-month period (VEPCO to NRC letter No. 817, dated October 4, 1979).

Since we reanalyzed as-built piping problems rather than comparing the as-built information with the original design documents, the two-day and the thirty-day non-conformance reporting requirements of IE Bulletin 79-14 were not considered appropriate for Surry (S&W to VEPCO letter SSV-1024, dated February 11, 1980, and VEPCO response SVS-1052, dated March 7, 1980). Because of the iterative nature of the pipe stress analysis and the large number of conservative piping modeling assumptions made by the analyst, the checking, independent review, and refinement of analysis to reduce conservatism took a considerable amount of time. In most instances, refinement of the stress analysis reduced the calculated stresses. However, where the extensive review process did not change the preliminary determination that piping stress was

over the allowable, the preliminary stress analysis became the run of record and the already designed modifications associated with that analysis were implemented. The computer runs made during the review process were not retained as part of the final calculation package.

The final calculation packages for problems reviewed by you, problems 3033, 3028, and 3015, did not contain all the review runs that might have been made. For the purpose of your inspection, we were able to retrieve one review run, dated February 19, 1980, for problem 3033. For problems 3028 and 3015, however, we were able to retrieve and show you several of the review computer runs. Furthermore, computer reviews were not the only items that constituted the detailed review. System designs, pipe supports, and seismic modeling assumptions were also reviewed. It was not at all unusual for the detailed stress review to exceed thirty days. This was primarily due to the large number of problems which were analyzed within a short time period. Our primary objective was to evaluate and upgrade the affected plant systems within the agreed upon five-month period; we achieved that objective.

We believe that we have acted in a fully responsible fashion in our IE Bulletin 79-14 evaluation of the Surry Power Station, have kept you informed of our approach through VEPCO, and have met the requirements of Criterion V of Appendix B to 10CFR50.

In recognition of your concern contained in the Notice of Deviation, the Surry Project Procedure STF-3 will be revised by October 1, 1980, to require that for the remaining IE Bulletin 79-14 evaluations, the detailed review process shall be expedited in an effort to accomplish the review within thirty days subsequent to identification of a potential overstress condition for piping related to an operating unit.